

# **Passage of Lines: Inhibitor or Facilitator to Maneuver?**

**A Monograph  
by  
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Infantry**



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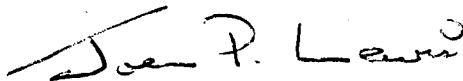
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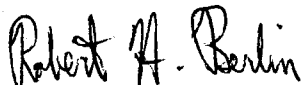
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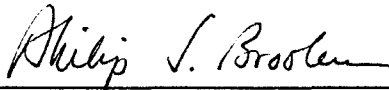
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# ABSTRACT

PASSAGE OF LINES: INHIBITOR OR FACILITATOR TO MANEUVER?  
by MAJ William F. Grimsley, USA, 54 pages.

Recent operations have demonstrated that units executing rapid yet protracted operations continue to experience significant problems in maintaining tempo. Whether attacking or defending, forces are likely to execute a passage of lines. This is particularly true in fluid and extended operations where the opportunity for extensive planning on a set-piece battlefield may not be the prevalent condition. With the publishing of FM 100-5 (June 93) and its emphasis on contingency operations in a joint and combined environment, the requirement for simplified and executable passages of lines according to an established system needs to be explored.

This study examines the theoretical and doctrinal background of the importance of maintaining tempo in maneuver operations across the spectrum of conflict and conditions. Other crossing operations with standardized doctrine, tactics, techniques, and procedures (e.g. river crossings, breaches) are similar to passages of lines. The author studies an historical example of a failed passage operation using the evaluation criteria of simplicity, mass, synchronization, and versatility and revises the operation using proposed organizational and control procedures.

The study concludes with several observations. First, there is a need for standardized procedures for passages of lines. This helps to deconflict potential problems in time-constrained operations, particularly when fighting joint and/or combined. Second, procedures are readily available within current established doctrine and are easily transferable to passage operations. Lastly, passages may be key to introducing new forces to the battlefield to prevent friendly culmination. Maintaining tempo and friendly initiative are key to facilitating maneuver and retaining the advantage over potential enemies.

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## SECTION I-INTRODUCTION AND BACKGROUND

### INTRODUCTION

Whether attacking or defending, forces are likely to execute a passage of lines. This is particularly evident in extremely fluid and extended operations. The US Army's recent experience in Operation Desert Storm highlighted the importance of efficient passage operations. Forces crossed the Iraqi defensive berm at the outset of the ground offensive and executed numerous subsequent passages of maneuver forces throughout the 100 hours to maintain pressure on enemy defending forces and adjust to the prevailing tactical conditions. A difficulty in that operation, as well as others, lies in the lack of specific procedural methods for organizing a passage, particularly in a time-constrained planning situation. There may be a need for an effective standardized procedural system for passage operations.

Given the United States' strategic focus on force projection, the implications of this study are numerous. First, the theoretical background of our doctrine dictates that controlling the tempo of battles and campaigns equals maintaining initiative. Second, the US Army will fight joint and combined, and often on little or no notice, therefore necessitating standardized procedures. Third, future enemies and missions may not resemble the traditional ones of the past and the need for simple and flexible procedures for sustaining mass

and controlling tempo across the spectrum of conflict continues to rapidly increase.

In order to develop these procedures, an investigation into the theoretical and doctrinal underpinnings for maintaining tempo in combat operations as a means of retaining freedom of action is important. Theory provides a basis for doctrine, and doctrine provides a basis for sound tactical concepts. One such concept is the use of passage operations to introduce fresh fighting forces and maintain tempo. Why does this operation always seem to cause such consternation among forces in the field?

Many past operations have executed successful passages, and future operations are likely to require them as well, including operations which are outside the scope of traditional combat missions. A brief review of an historical example and a potential future mission highlights the difficulties presented by one unit's movements through another, particularly when the existing US Army procedures for passages lack standardization.

Passages of lines bear similarities to other crossing operations (e.g. breach operations and river crossing operations) which have some specific and standardized procedures across unit boundaries. If passages present an impediment to maneuver similar to a river or man-made obstacle, are the techniques used in

other crossing operations applicable to maintaining tempo in passages of lines as well? Effective passages may need to be organized similarly to other crossing operations where standardized procedures already exist. Proposed revisions for passage doctrine, tactics, techniques, and procedures will be evaluated using the four criteria of simplicity, mass, versatility, and synchronization; chosen because they are a mix of recognized principles of war and the tenets of Army operations<sup>1</sup>.

#### **BACKGROUND**

With the publishing of FM 100-5, Operations, in June 1993, the US Army entered a new era in its history. There is no longer a clear or readily recognizable direct threat on which to focus. Instead, the US Army is faced with operating in a wide variety of conditions and the new doctrine

"...causes AirLand Battle to evolve into a variety of choices for a battlefield framework and a wider interservice arena, allows for the increasing incidence of combined operations, (and) recognizes that Army forces operate across the range of military operations. It is truly a doctrine for the full dimensions of the battlefield in a force-projection environment."<sup>2</sup>

The significance of this for passage operations lies in the dynamic nature of our doctrine. Based on theoretical precepts and historical experience, US Army doctrine provides an engine for change in applying the dynamics of combat power (Maneuver, Firepower,

Protection and Leadership<sup>3</sup>) more effectively on future battlefields. One of the principal requirements for effective application of combat power is a recurring theme identified in classical warfare theory and operational maneuver theory: maintaining tempo in combat operations.

Tempo is militarily defined as "...the rate of speed of military action; controlling or altering that rate is essential for maintaining the initiative."<sup>4</sup> The art is therefore in determining the methods by which tempo is controlled and force applied at the correct time and place on the battlefield. Clausewitz discusses the importance of tempo throughout On War, but for the topic of this study, the review of his precepts are confined to a discussion of concentration and the culminating point.

Concentration is the placement of relative superiority at the decisive point. It is based on more than sheer numerical superiority. Clausewitz outlines numerous factors which aid in concentration, most notably a valid estimate of the situation, economy of committed forces (and the unification of forces in time), and the maintenance of a reserve.<sup>5</sup> These methods provide the commander the freedom of action to control events on the battlefield and therefore control the tempo of action. This becomes increasingly important



when attempting to complete the destruction of enemy forces without resorting to a battle of equal attrition.

The other important notion of tempo which Clausewitz provides us is the culminating point. Discussed in several Books of On War, the culminating point is that place in time and space where a force's strength advantage is shifted to his opponent.<sup>6</sup> This is crucial to any discussion of tempo as it affects the organization of the battlefield, the introduction or retirement of forces, and the means of sustainment of the force. The commander's ability to gauge and exploit the culminating point is essential to his capability to control the events of the battlefield in time and space. Theory thus indicates that control of tempo is inherent in battlefield success. One method of controlling tempo is the introduction of new forces on the battlefield by a passage operation.

Operational maneuver theory aligns technological, doctrinal, and tactical innovations with the importance of tempo to create success on modern battlefields. The Wehrmacht successes in the early campaigns on the Eastern Front in World War II are a good example. Inversely, the Soviet Army of 1942-1945 demonstrates the importance of tempo and controlling it over protracted periods of time and space. Soviet maneuver practitioners adapted techniques from maneuver theorists like Marshals Tukhachevsky and Svechin for application in the attack,

pursuit, exploitation, and ultimate defeat of German forces. This success was largely due to a commander's ability to control the tempo of the battle and apply force at the appropriate place in sufficient concentration of relative strength.

For the Soviet commander to maintain tempo, he fought throughout the depth of the German force. Each fight was linked to an overarching campaign goal which was ultimately linked to the destruction of the enemy force. This premise sounds much like Clausewitz, but in the Soviet case may also be attributed to Svechin.<sup>7</sup> The notion of fighting in depth therefore extended to enemy forces beyond those directly in the front line. Numerous Soviet military leaders directed their lessons learned from the Great Patriotic War at teaching the commander's control of tempo as key to success. Chief among the means to execute that control was the ability to coordinate each unit's actions under the principle of cooperation. Under this principle, each military arm was interdependent on others; the whole being greater than the sum of its independent parts.<sup>8</sup> The Soviet style of echelonment, both in the offense and defense, assumes the implied task of passage operations as a routine part of execution.

To preclude future Soviet victories, US Army doctrine from 1945 to June 1993 was focused on seizing the control of time and space from our potential Soviet

enemy and using it to our advantage to defeat him through fire and maneuver. Potential battle lines were fairly well recognized and the enemy relatively easy to template. Our doctrine reflected our potential enemy and evolved over the years from prescriptive methods on tactical missions, to a dynamic defensive model, to AirLand battle and its focus on attacks in depth and the offensive spirit. As mentioned earlier, however, we have arrived at a point in history where the enemy is not clearly identified and the means by which we can control the tempo of the battlefield is more difficult to discern.

The theoretical notions of tempo, concentration and culminating point provide a basis for US Army doctrine in general, and specifically highlights the importance of effective passage doctrine. US Army forces must be capable of attaining concentration through maneuver and fires in order to maintain the tempo of the battle. The introduction or retirement of friendly forces at the appropriate time and place precludes attrition past the point of culmination. The means by which commanders are able to introduce new forces to combat is critical to keeping the pressure on the enemy and preventing him from attaining the initiative. Control of tempo through simple and versatile procedures which allows commanders to synchronize and insure mass increases in importance

as we deploy to new and potentially different battlefields.

## SECTION II-PASSAGE DOCTRINE

As the roles and missions of the Army shift to anticipate the future, the doctrine, tactics, techniques, and procedures (TTP) for passage operations remain relatively constant with past experiences. This may suffice for standard linear operations, but the predominant tactical scenarios of the future may be much less well-defined than even the recent experience of Operation Desert Storm.

US doctrine and TTPs for passage operations are laced throughout most of the maneuver manuals for every command level-Platoon through Corps. The common denominator among these manuals, however, is that the passage sections merely list common responsibilities for passing and passed units without going into detailed specifics of how to actually execute the mission.<sup>9</sup> Most of the details needed to execute seem to be left up to specific units in the field. The problem with this method, particularly as the level of command gets higher, is that units often do not share common standard operating procedures. This problem may be heightened when executing a passage operation with a non-US unit.

The keystone doctrinal manual of the US Army, FM 100-5, states that "a passage must be well-planned and

coordinated to ensure minimum congestion and confusion...to continually mass combat power at key times and places, while maintaining the momentum of the attack at a tempo the enemy cannot handle."<sup>10</sup>

Subordinate doctrinal manuals further delineate guidance to incorporate the specifics outlined above. The scheme of maneuver for the passing unit conforms to the tactical situation of the stationary unit. After the requisite exchanges of information, orders, and plans, the passing unit begins its maneuver. Doctrine and common sense dictate that each unit command posts be collocated to ease command and control of the operation and ensure maintenance of control over tempo. The specifics of organizing each battlefield function between units, however, is left up to the units themselves.

In February 1991, VII (US) Corps was the main effort for the ground attack to liberate Kuwait from Iraqi Army forces. The Iraqi's had prepared extensive fortifications along the border, manned by infantry and supported by large amounts of artillery and mobile armored reserves. The VII Corps planned to execute a breach of these defenses on the extreme western flank to avoid the strength of the enemy center, and quickly exploit the breach by passing fresh forces forward to continue the attack.

The 1st (US) Infantry Division, supported by 7th (US) Engineer Brigade was designated the breach force. After employing its reserve Brigade to secure the far side of the breach, the 1st Infantry Division would pass forward the initial exploitation forces, 2d (US) Armored Cavalry Regiment and 1st (UK) Armored Division. The Corps' Tactical Command Post was positioned forward near the 1st Infantry Division's Command Post to command and control the maneuver of forces through the breach. The 1st Infantry Division organized the breach area, and the planned subsequent passage, as a deliberate river crossing.<sup>11</sup>

The efficiency of the crossing of the Iraqi defensive berm, and the subsequent passage of exploitation forces forward demonstrates the importance of passage operations. The successful passage set the conditions which allowed US/UK forces to control the tempo of the battle from the initial strike into Iraq until the cease-fire was ordered 100 hours later. The initial operation in VII Corps seemed to set the tone for this rapid advance. A close look at the organization of the breach and passage exemplifies the synchronization that can be achieved when all units involved in a difficult operation are executing the mission off of a ground of common understanding and procedures.

In addition to our own doctrine, however, the US Army is also bound by standardization requirements from allies; particularly NATO forces. These agreements, known as STANAGs (Standardized NATO Agreements) and Allied Tactical Publications (ATPs), provide a common basis for operations and missions across the spectrum of conflict and battlefield functions. Interestingly enough, there is no specific STANAG devoted specifically to passage operations.

Applicable maneuver STANAGs may be used to facilitate maneuver and assist the US commander in maintaining tempo over the enemy. This is especially true if he uses the specifics required by the appropriate agreements to his advantage to organize the passage area. Examples of this are: codified means of friendly unit identification/recognition signals (STANAG 2129); conforming air assault and amphibious control methods to controlling ground passages (STANAG 2351 and ATP 36); and the unit requirement to use standardized control measures, command relationships, and support by friendly forces in contact to other friendly forces as required (ATP 35A).<sup>12</sup>

Doctrinal manuals in use by US Army and allied forces are replete with standardized procedures for most tactical missions in conventional conditions. As demonstrated, many of these procedures may be applicable to passages of lines as well. Standardized doctrine

makes execution in traditional tactical operations more simple. As the US Army transitions to less-traditional roles and missions, probably as part of a combined force, the need for standardization increases in importance.

The potential for the US Army's involvement in diverse missions is increasing. An example future scenario may place the US Army with 4 other nations' forces in a United Nations peacekeeping role within disputed territory between two belligerent nations; A and B (Figure 1). The overall force commander in this mission is not a US officer. The designated Reaction Force (RF) is a US Marine Corps force afloat.

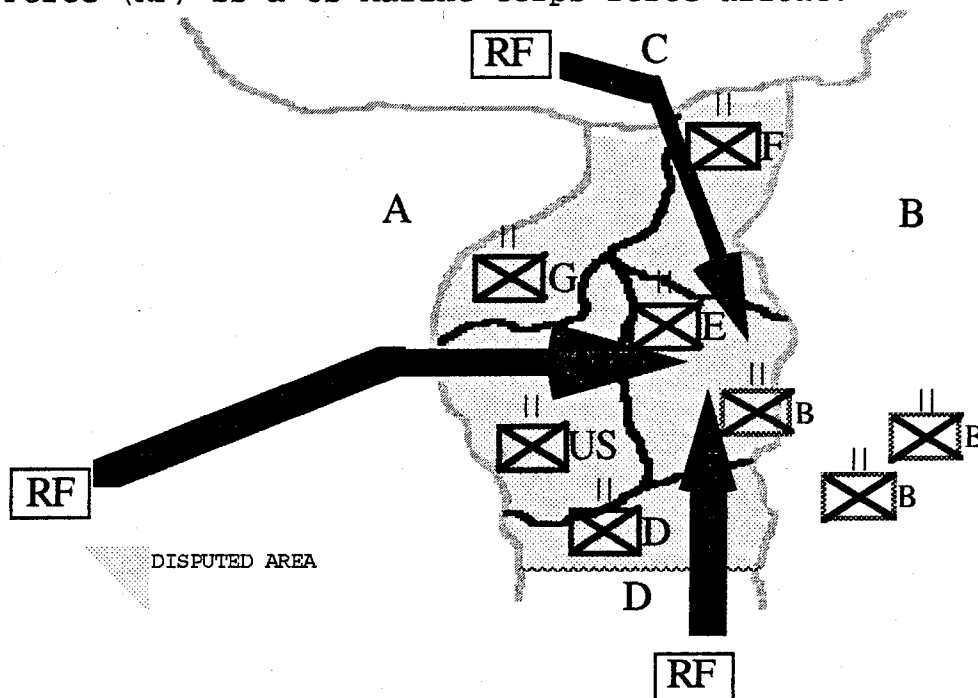


FIGURE 1



The situation in the disputed territory declines rapidly when forces from B infiltrate the disputed area and attempt to incite the indigenous population against the peacekeeping forces. The UN commander requests the Reaction Force move through peacekeeping forces on the ground, show force and resolve to the rioters, and instigators, and restore the integrity of the territory. Actual combat is not anticipated, but speed of execution in order to quell the uprising and prevent the potential spread of popular support is of paramount importance.

To accomplish this mission, the Reaction Force commander, UN commander, and the US peacekeeping force commander must all collocate command posts, exchange information, and work out the specifics of how each element will plan, prepare, and execute the passage of lines. Without the ability to use common and standardized procedures, even among two US forces, the UN commander cannot execute his mission with the speed required. The initiative in the disputed territory will shift away from the UN and the tempo will be surrendered to the supporters of Nation B. A simple solution on standardizing procedures for passage of lines to ensure the rapid introduction of new forces may diffuse the potential military and political embarrassment to the legitimate forces on the ground.

Doctrine on passages does not have to be a limiting or stifling factor. Standardized procedures may be

helpful in many instances, particularly where there is little available time to coordinate all of the details of such a difficult operation. As demonstrated in the example of Operation Desert Storm, passages organized around commonly recognized crossing operation doctrine facilitated maneuver. In the hypothetical scenario, the lack of standardized procedures caused unnecessary and costly delay and the passage was an inhibitor to maneuver. Well-organized passages, built on standardized operating procedures, can be an effective tool to facilitate maneuver and assist the commander in maintaining the tempo of operations.

### **SECTION III-CROSSING OPERATIONS**

VII Corps' breach and assault across the Iraqi berm was a successful passage operation, and a result of several factors which ensured the maintenance of tempo. The success seems to lie in the organization of the entire mission using standardized procedures common to a breach and a river crossing. Breaches and river crossings are both characterized by organizing and moving forces across an obstacle to maneuver through a relatively fixed line, "...while ensuring the integrity and momentum of the force."<sup>13</sup>

Passages are also concerned with maintaining tempo and mass while moving through a line. The key to organizing passages of lines may therefore lie in

developing standardized doctrine and TTPs similar to other crossings.

River crossing operations are discussed in maneuver manuals of the US Army at each echelon-Platoon through Corps, and in Field Manual 90-13, River Crossing Operations. The manuals are complementary and therefore provide standardized doctrine, tactics, techniques, and procedures to forces in the field to execute either a hasty or deliberate crossing.<sup>14</sup>

A deliberate river crossing may require significant planning, preparation, and execution time. It is generally used as a transition between defensive and offensive operations, when an enemy force has well-prepared defenses along a water line, or the water obstacle itself presents too great a barrier for rapid crossing and therefore requires more extensive preparation.

A hasty river crossing is used when the situation is more fluid. It is generally not, however, an unplanned operation. Hasty river crossings are characterized by "...prior planning, standardized procedures, and battle drills...(so) that the hasty crossing is accomplished with minimum loss of momentum."<sup>15</sup>

River crossing operations are organized along similar standardized procedures regardless of being labeled hasty or deliberate. A Division executing a

river crossing (Figure 2) usually designates the Assistant Division Commander-Maneuver as the Crossing Force Commander (CFC) and organizes a temporary headquarters and staff to support him. This is often the Division Tactical Command Post. Maneuver Brigades assume responsibility for subordinate portions of the crossing site and designate Crossing Area Commanders (CAC), often the Brigade Executive Officers. The designated crossing commanders control the flow of forces while they are in the crossing area.

Phasing a river crossing operation is important as it provides the requisite security to crossing forces and ensures that momentum of assault forces is maintained. The doctrinal delineation of phases is: advance to the river; assault crossing of the river; advance from the exit bank; and securing the bridgehead line.<sup>16</sup> Although the phases are generally sequential, there is no significant pause between them during execution.

During the advance to the river phase, it is important that forces be positioned off the route of advance to provide direct and indirect fire support, air defense protection, mobility support, and logistics as required. Support forces must also provide and secure staging areas on the near bank, and guide assault elements through support lines to begin the crossing operation. The CFC should also have a designated reserve

force capable of defeating the enemy should he attempt to disrupt assault force momentum.

Once assault forces enter the crossing areas, they are under the operational control (OPCON) of the respective area commanders. OPCON ensures that all battlefield functions are synchronized to provide the assault forces the means to maintain momentum. Assault forces remain OPCON to the crossing area until the advance from the exit bank is complete.

An important control measure imposed on assault forces is the release line, a recognizable feature on the ground which, when crossed, releases the assault unit from OPCON of the crossing area. This is a critical phase in the crossing operation, as the assault units are now responsible for providing their own support to maintain their momentum. The crossing commanders may need to provide an intermediate staging area, similar to an assault position, between the exit bank and the release line. A brief halt would provide the assault unit the ability to quickly regain mass and consolidate the support forces required to execute the final phase of the crossing, securing the bridgehead line.

The bridgehead line should provide control of the riverline within the Division's zone of action. Assault units must secure a sufficient amount of terrain to provide space for the remainder of Division forces to

continue the crossing consolidate on the exit bank, and reorganize to continue the attack.

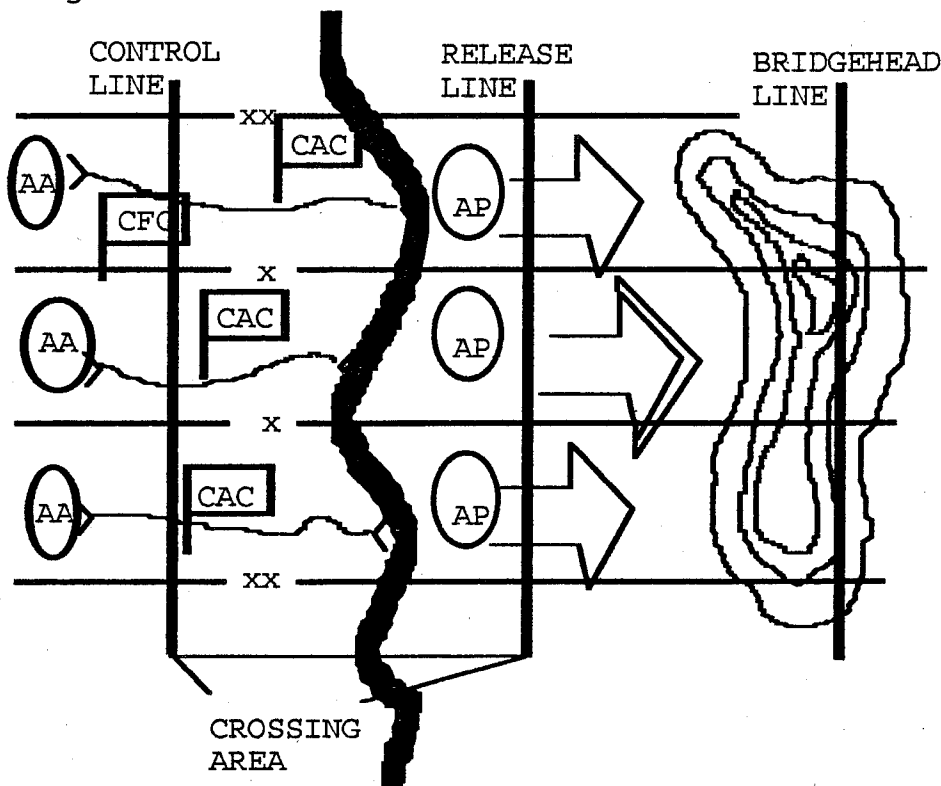


FIGURE 2

This review has focused on an offensive river crossing, but a defensive or retrograde river crossing is organized identically, only in reverse. The key notion of the river crossing process, whether hasty or deliberate, is that it is organized on standardized doctrinal procedures which are common throughout the Army's publications. Units from different headquarters, components, or even nations could conceivably execute a combined river crossing operation on short notice with minimal coordination or preparation time. The tactical

potential of this capability is enormous when considered against the desire to maintain friendly tempo and deny the initiative to the enemy commander.

The importance of river crossing procedures to passage operations lies in the notion of standardization and applicability. The transposition of the effective control measures, command, and tactical control procedures which are already standardized for river crossings offers a potential solution for the lack of standardized passages.

The organization of breaching operations is similar to river crossing operations. Breaches are normally executed at Brigade or Battalion level but FM 71-100, Division Operations, states that "...where obstacle systems are of such a magnitude that the effect is similar to the significance of a major river, the division may need to conduct breaching operations...(these circumstances) may require the formation of a crossing force headquarters similar to that for deliberate river crossings."<sup>17</sup>

Maneuver manuals below the Division level discuss breaching operations in detail, as does Field Manual 90-13-1, Combined Arms Breaching Operations.<sup>18</sup> Based on tactical conditions, a unit may by-pass an obstacle, or breach it through the use of one of four doctrinal methods: in-stride, deliberate, assault, or covert. Each method is based on similar principles and organization.

The in-stride and deliberate breaches are the most common and provide a useful comparative example with other crossing operations.

The deliberate breach is conducted when a defending enemy has prepared extensive obstacles and fortifications. The breaching force requires significant planning and preparation time, particularly for detailed reconnaissance and rehearsals. A deliberate attack will often include a deliberate breach, followed by an assault or exploitation.

The in-stride breach is used to penetrate more lightly defended or unforeseen obstacles during an attack. This situation is characteristic of a movement to contact or hasty attack mission, where the tactical conditions may be less defined than in a deliberate breach situation. Because of the potential requirement for conducting an in-stride breach, units must rely on standardized procedures and battle drills to ensure maintenance of momentum and the tempo of the attack.

Whether conducting a deliberate or in-stride breach, US Army doctrine provides breaching five tenets for organizing the mission: intelligence, breaching fundamentals, breaching organization, mass, and synchronization.<sup>19</sup> Intelligence provides the framework on weather, terrain, and enemy force capabilities, disposition, and likely course(s) of action. This is critically important as it often highlights weak areas



of an enemy defense which can be exploited by maneuver forces as they conduct the breach and quickly exploit.

The breaching fundamentals are the sequence of actions which, when combined with an effective breaching organization, ensure sustained momentum of the attack. Breaching success is contingent on early, consistent, and accurate suppression by direct, indirect, and non-lethal fires. Suppression establishes instant superiority over the enemy by fire. The second fundamental is obscuration, the physical limiting of the enemy's ability to see. Synchronization of suppression and obscuration provide maneuver forces the ability to close on the obstacle and secure the breach site. Breaching forces then begin to reduce the obstacle, or open lanes through it to pass assaulting forces forward.

As with breaching fundamentals, the organization of the force provides for offensive momentum. A unit designated to execute either a deliberate or in-stride breach will doctrinally task organize subordinate forces into 3 elements: support, breach, and assault. The support force is responsible for controlling suppression, obscuring, and securing. The breach force, in coordination with the support force, physically executes the reduction of the obstacle. The assault force must pass forward and secure the far side of the obstacle, particularly focused on enemy forces which may

attempt to disrupt the tempo caused by the attacker's momentum.

The remaining two breaching tenets, mass and synchronization, are the logical result of executing an effective breach according to the previous fundamentals. The key to mass and synchronization are the command and control of well-organized forces executing a breach based on standardized procedures and focused on retaining tempo.

The importance of an effective breach to the success of subsequent offensive operations lies in the momentum of the breach and its rapid exploitation of enemy defenses. This denies the enemy commander the ability to control time and space and he surrenders the inherent strength of the defense to the attacker's initiative. Because standardized doctrine, tactics, techniques, and procedures for breaching operations exist, units from different headquarters, forces, and even countries should be capable of executing combined offensive operations through prepared enemy defenses of the future.

As depicted in the case of Operation Desert Storm, the breach and subsequent passage of lines successfully achieved the desired tactical condition of maintaining tempo through overwhelming force and momentum using "borrowed" procedures from river crossing doctrine. The doctrine and TTPs for both river crossings and breaches

are well-established, recognized, and standardized. Despite their similarities, however, passage doctrine remains less than equally standardized and established. The US Army requires the ability to accomplish the future task of effective passages, whether under deliberate planning or hasty conditions, without continually resorting to ad hoc organizations and procedures.

#### **SECTION IV-ANALYSIS AND CHANGE**

A solution to solving the dilemma of ad hoc organizations and procedures for passages of lines lies in the development of standardized doctrine, tactics, techniques, and procedures. The system must rely on efficient procedures and control measures which can be implemented as either a deliberate or hasty mission. More importantly, however, a solution must ensure that forces executing a passage maintain momentum in order to retain tempo.

Passage of lines operations are inherently difficult but important operations for sustaining tempo and retaining the initiative under either deliberate or hasty planning conditions. The uncertain conditions of future battlefields dictate that doctrine be useful and dynamic. US Army has adopted principles of war and tenets of operations as the basis for doctrine and which may be used to evaluate new applications of tactics,

techniques, or procedures. In a mission as difficult as a passage of lines, the criteria of simplicity, mass, synchronization and versatility are especially important and therefore provide a framework of analysis.<sup>20</sup>

The intent of the simplicity principle is to make operations as routine as possible using standardized procedures where possible. Simplicity is important to ensuring that orders are clear and easily understood by subordinates. This minimizes the natural effects of confusion which come with tactical operations under combat conditions and provide the means for units to execute the higher commanders' intent with minimal supervision.<sup>21</sup>

Simple plans and orders provide the means to focus combat power on the battlefield. This focus, based on the principle of mass, is derived from combining the effects of combat power at a decisive point while maintaining tempo. This sustained synthesis of power should overwhelm enemy forces and preclude friendly forces from reaching the culminating point; thus retaining friendly initiative.<sup>22</sup>

Mass is achieved by synchronization of operations. Synchronized operations imply a level of coordination and planning which ensure the mission is organized to combine the effects of maneuver, fires, and support to maintain tempo and sustain the force to overwhelm the enemy and retain friendly initiative. Synchronization

requires an intellectual visualization of the organization of an operation which is encompassed by a clear expression of the commander's intent.<sup>23</sup>

Versatility implies that current and future forces must be capable of sustained operations across the spectrum of conflict and conditions. This assumes that the US Army is equipped with standardized methods for conducting operations horizontally (lateral coordination among units, regardless of parent headquarters, service or nation) as well as vertically (within a standard unit hierarchy).<sup>24</sup>

The criteria of simplicity, mass, synchronization, and versatility provide a useful tool to analyze passage operations of the past. Using this analysis and the lessons of past missions, the criteria also provide a means for establishing standardized procedures for passage operations in the future US Army.

#### **SITUATION-NORTH AFRICA, OCTOBER 1942**

The El Alamein campaign provides a useful example of passage operations involving armored and light infantry forces. The German forces were defending in two echelons, with reserves behind each echelon. Having expended much of their fighting strength in the offensives of the Summer of 1942, the German forces were incapable of continuing their offensive until reinforcements arrived.<sup>25</sup>

The British Eighth Army planned to attack before enemy forces could reconstitute and destroy the remnants of the Africa Corps. The plan to execute this intent was to breach initial enemy defenses at night along the OXALIC LINE with Infantry divisions from 30 Corps and pass 2 Armored divisions from 10 Corps forward to exploit success and destroy enemy mobile reserves along the PIERSON BOUND LINE. The limit of advance for 10 Corps was the SKINFLINT REPORT LINE, where it would consolidate as 30 Corps followed and supported to destroy bypassed forces up to the PIERSON BOUND LINE (Figure 3). Although the operation involved two separate Corps headquarters, Eighth Army neither planned or supervised the execution of the passage operation.<sup>26</sup>

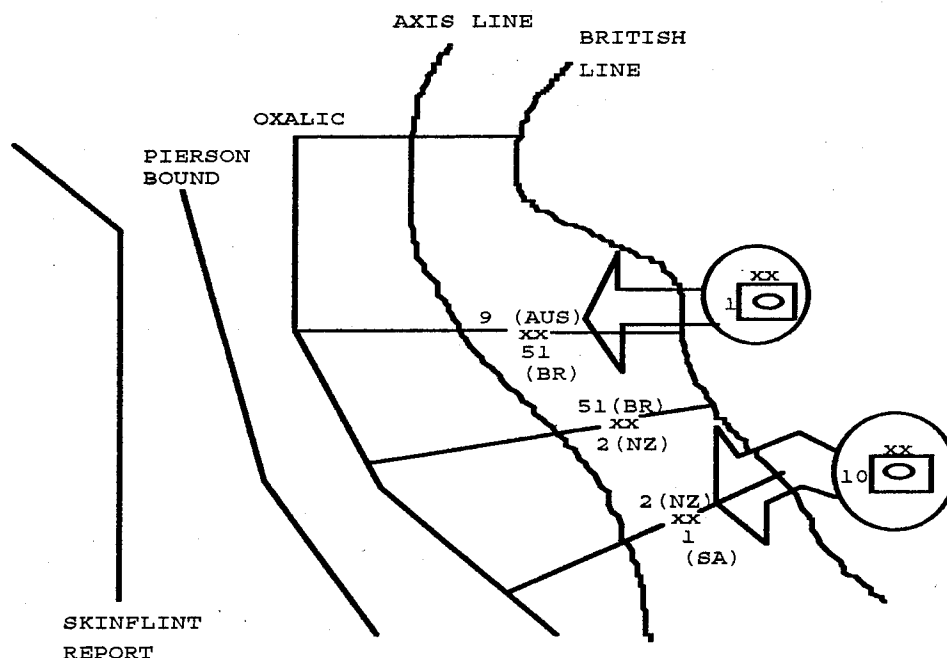


FIGURE 3

The resulting execution of this passage and attack, code-named OPERATION LIGHTFOOT, was a failure. The 30 Corps' attack began at 1900 on 23 October. Forces became decisively engaged in fighting with the defending enemy infantry and could not maintain security of the passage lanes. The effects of night, dust, and combat combined to clog the lanes up with vehicles and soldiers so that exploiting forces from 10 Corps which should have passed forward by 2400 on 23 October were still behind the Start Line at dawn on 24 October. The attack stalled around 0900 on 24 October, was attempted again that night with equal failure, and the Eighth Army was forced to try again elsewhere.<sup>27</sup>

British operations at EL Alamein provide a good example of a passage operation which failed for violating the fundamentals of simplicity, mass, synchronization, and versatility. The plan called for a night operation between two equal forces with no higher headquarters to provide command and control. The use of standard offensive graphic control measures gave subordinate commanders a means to plan their own operations, but without regard for the higher commander's intent.

Neither the initial infantry attack or the armored exploitation plans guaranteed mass. The use of multiple lanes (6-7) provided a method of moving large forces, but there were no provisions for maneuvering the force

to gain a positional advantage over the static defending enemy forces. The lack of mass afforded the German force the ability to fight the British attackers in single entities instead of having to contend with overwhelming forces at a decisive point.

The lack of synchronization on the part of the British attack was a direct result of the lack of planning and supervision of the passage by a higher headquarters.<sup>28</sup> Each Corps and subordinate Division had its own plan for execution, and retained operational control of its own forces. The massive constriction on the passage lanes, inability to pass forces forward efficiently, use armored forces from 10 Corps to support 30 Corps attack, or provide support for pressing the offensive past 0900 on 24 October are all examples of the lack of synchronization inherent in the LIGHTFOOT plan and execution.

The versatility of Eighth Army forces to adapt to the conditions set by the German defenses, prevalent weather conditions, and their own organization seems lacking. The passage plan is assumed away as an inconsequential factor in the attack. The plan was designed for success and failed to anticipate failure. Versatility in planning and command supervision of execution may have been able to sustain the offensive and not surrender the initiative to a force defending in static positions.



Simplicity, mass, synchronization, and versatility provide a useful means of evaluating historical examples of passage operations. Because they are derived from the underlying theoretical and doctrinal precepts of the US Army, they are also useful in developing new or revised doctrine, tactics, techniques, and procedures.

#### **REVISED SITUATION**

The execution of OPERATION LIGHTFOOT was hampered by three major factors, the lack of standardized procedures for executing the passage of lines, uncoordinated schemes of maneuver between the two Corps, and the absence of a higher controlling headquarters. Each of these deficiencies could have been remedied by treating the passage as an operation in itself and adapting standardized procedures from other similar operations. The use of river crossing and breaching operation procedures would eliminate the ad hoc command and control relationships, help control maneuver and fires, and facilitate the maintenance of mass and tempo.

The Eighth Army Tactical Command Post (TAC CP) should have commanded the passage, and the Army Commander serve as the Passage Force Commander (PFC) to ensure unity of effort with the initial attack, passage and the subsequent offensive exploitation. The terrain from the Control Line to the Pierson Bound Line and the flank boundaries of 30 Corps formed the Passage Area. Because his forces were in contact with defending enemy

forces, the 30 Corps commander should have been designated the Passage Area Commander (PAC), responsible for the breach of initial enemy defenses and the operational control of all forces within the Passage Area. It is important for one commander to control forces within the Passage Area, as this ensures momentum is maintained and the ability of enemy action to wrest away the initiative is minimized. The 10 Corps commander should have served as the Assault Force Commander (AFC), controlling his Corps up to the Control Line, relinquishing operational control to the 10 Corps commander through the Passage Area, and regaining control for the exploitation phase of the operation at the Release Line. Both the 10 Corps and 30 Corps Main Command Posts should have collocated with the Army TAC CP (Figure 4).

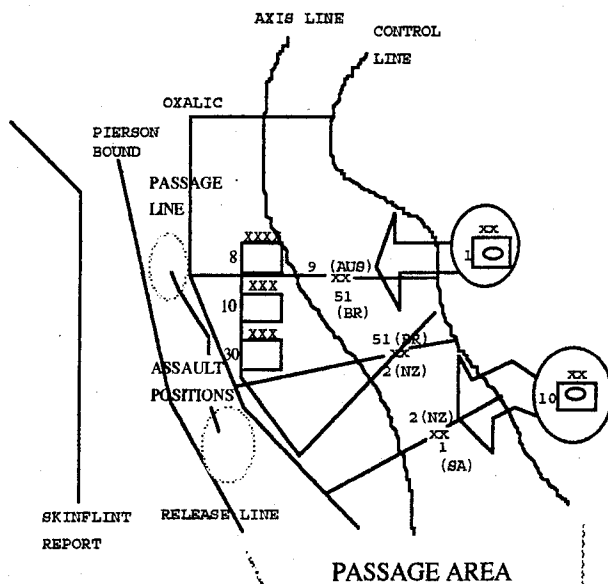


FIGURE 4

The Eighth Army plan should have organized forces of 10 and 30 Corps into three distinct elements: support, passage, or assault. Correct organizations of the plan by time and missions would be into four phases: advance to the passage, assault through the passage area, consolidation of the release line, and exploitation. Although the phases are generally sequential, there may or may not be distinct pauses between them during execution.

The advance to the passage sets the conditions for rapid execution of the passage. Elements of the support force which includes 30 Corps and 10 Corps Artillery, Air Defense, Logistics Command and Engineers, should move forward in advance of the assault force (10 Corps) to be in position to provide the requisite synergy for the actual passage. The passage force is comprised of the 30 Corps forces in contact and reconnaissance forces in the Passage Area. Terrain management and security are the critical considerations of the PAC during this phase. The collocation of command posts is crucial to coordinate the various movements and positions. The assault force remains in staging areas to the rear of the Passage Area.

Eighth Army's assault through the Passage Area should begin with several simultaneous actions. The passage forces are responsible for breaching initial enemy obstacles and guiding assault forces forward from

their staging areas to the passage lanes. Doctrine for movements dictates that a division needs four separate routes but requirements for numbers of lanes and routes are obviously situationally dependent. The pass time of an armored division on a single route/lane could be as long as 26 hours.<sup>29</sup> The most important considerations in passage movements are the tactical situation of 30 Corps in the Passage Area, the 10 Corps exploitation plan and the reactions of the enemy. It is precisely because of the tenuous nature of the operation that the PAC must have operational control of all forces within the Passage Area. The close fight under the 30 Corps commander defeats enemy forces with overwhelming fire and maneuver and, in concert with deep operations coordinated by the Eighth Army, will isolate the Passage Area. The ability to simultaneously mass fires and maneuver under single commanders in coordination with all arms in separate spaces ensures that the friendly forces retain the initiative and maintain the tempo of operations over any reaction the enemy may attempt to undertake.

As the assault forces complete their passage forward, there may be a need for temporary halts to ensure mass is retained. This should not be construed as losing momentum, but assault forces must be wary of their vulnerability to enemy action and inertia. If the situation dictates, the halt should be on the friendly

side of the Release Line, as the combined effects of forces under the operational control of the PAC will help to protect the assault forces.

The consolidation of the Release Line may also be accomplished by continuing offensive maneuver forward. At the Release Line, the AFC would resume control of his forces and all other forces allocated to him by the Corps' attack order. This includes forces physically located within the former Passage Area, now secured on the far side by assault forces at the Release Line. Since their command posts are collocated, the 30 Corps commander and 10 Corps commander can complete their final coordination, and responsibility for continuing the attack now rests with 10 Corps.

The exploitation phase of the passage in the Eighth Army situation is the continuation of the attack by 10 Corps supported by other Corps units. 30 Corps would continue to fight isolated and bypassed enemy defensive forces. The delineation of forces into assault, passage, and support forces is no longer appropriate as the passage is complete.

The British Eighth Army situation at El Alamein provides an excellent example of a failed passage operation which resulted in a failed attack. Eighth Army did not plan the passage effectively, nor was there a higher headquarters supervising the execution of the passage. The effective coordination of 30 Corps' attack

to breach enemy defenses with the rapid forward passage and exploitation by 10 Corps could have forced the enemy commander to remain fixed in positions without the ability to influence the battle with his mobile reserves. As the battle evolved, however, the British forces were never able to effectively control the movement of forces through the passage lanes to support the initial attack or exploit through the enemy defenses.

The use of simple standardized procedures under the command and control of a single headquarters could have prevented the failure of OPERATION LIGHTFOOT. As shown in the revised situation, the adaptation of standardized procedures from river crossings and breaching operations provides a framework of organization and execution which simplifies a difficult mission and facilitates the maneuver of forces. The plan for the revised LIGHTFOOT was developed under deliberate planning conditions for an offensive operation, but the principles and control measures used are equally applicable to defensive or retrograde missions, or in situations which require hasty execution.

Passages of lines are complex but critical to the success of the follow-on mission, as demonstrated by OPERATION LIGHTFOOT. The intent of this review is to provide a versatile but standard set of actions and sequences which units of the US Army, and other land

forces working with the US Army, can use to simplify a difficult operation. The use of adapted doctrinal procedures validated against the criteria of simplicity, mass, synchronization, and versatility provides a useful framework for building this set of standardized procedures.

## **SECTION V-SIGNIFICANCE AND APPLICABILITY**

The true test of a proposed solution for a tactical problem comes with execution in the field. Simulation and speculation cannot substitute for the actual experience of conducting a mission under tactical conditions. Current doctrine for the execution of tactical missions are grounded in the principles of war and tenets of operations. These precepts are also useful as a framework of analysis for evaluating new or revised doctrine, tactics, techniques, and procedures.

The example of OPERATION LIGHTFOOT provides a vehicle for evaluating a failed passage operation using the criteria of simplicity, mass, synchronization, and versatility. The revised LIGHTFOOT situation was developed to demonstrate the effectiveness of employing standardized doctrinal procedures for passage operations while using the same mission and organization. The same criteria of simplicity, mass, synchronization, and versatility applied against the proposed doctrinal revisions validate the requirement for change and the effectiveness of standardized procedures.

Simplicity lies in the use of of repetitive orders and drills based on a standard model. The adaptation of procedures from other crossing operations ensure simplicity. This is not an original idea, as demonstrated by the 1st Infantry Division and VII Corps plans for the breach and forward passage in Operation Desert Storm. The use of simple and recognized tactical procedures from other doctrinal sources, adapted to the conditions of the mission at hand, provided forces the means to achieve rapid and efficient success.

By establishing standardized simple and easily transferable techniques and procedures for passage operations, the US Army is ensuring the effective capability for executing tactical operations. The inherent simplicity of using standardized doctrine without resorting to unit-specific procedures will ensure a comprehensive unity of effort in operations, particularly in a time-constrained environment. This is especially important when balanced against the consideration of the available force structure for future missions: US Army active and reserve components; joint US forces; and combined coalition forces.

Whether forward or rearward, passages of lines must be organized to mass the effects of combat power at the decisive point on the ground and in time. The proposal for standardization of passage doctrine relies on tested doctrinal procedures which have proven their ability to



mass combat power. The designation of support, passage, and assault forces delineate specific responsibilities for planning, preparation, and execution. The use of doctrinal graphics for controlling maneuver, fires, and support provides the commander with the ability to effectively mass combat power. This is particularly important in the passage phase, as that is the point at which the friendly force is most vulnerable. As the unit completes passage, consolidates, and exploits, the commander retains mass and the ability to press the fight through the depths of the enemy formation and therefore retain the initiative afforded by maintaining tempo.

The friendly commander's ability to sustain mass during combat operations is a direct result of adherence to the tenet of synchronization. By the effective application of the elements of combat power in time and space, the commander's plan provides the friendly forces the conditions for overwhelming success. In the passage of lines proposal, the most important means of ensuring synchronization is by the command and control organization. The alignment of all forces in the total mission, regardless of designated function, provides commanders and staffs with the capability to synchronize all tasks and purposes to a unified goal. Each phase is supportive of the overall plan. Synchronization is further embedded in the plan by designating the Passage

Area as a separate and distinct command and control measure. This ensures that friendly forces retain the flexibility to swiftly execute their plan or adjust actions based on shifts in the tactical situation. The capability of friendly forces to act faster than the enemy sets the conditions for the maintenance of tempo.

Versatility is the newest tenet of US Army operations. It is a vision of an important requirement for present and future forces. Narrowed down to the focus of evaluating a tactical passage operation, the importance of maintaining versatility increases. The conditions prevalent during deliberate planning may not be present during execution. Likewise, the opportunities for planning in a time-constrained environment may be more likely in a contingency force army. The use of standardized doctrinal procedures for tactical tasks will assist commanders in swiftly executing missions without becoming bogged down in unnecessary minutiae.

The criteria chosen to evaluate the proposed solution for filling the doctrinal void surrounding passages of lines provide a good framework of analysis. A criticism of the evaluation could be that it is done on paper in a sterile academic environment. Because the criteria are derived from principles of war and tenets of operations, based on historical experience, they maintain validity which transcends the school environment to applicability in the field. Forces in the

near future will need to remain versatile to face contingency situations under uncertain conditions. Simple standardized procedures for executing missions like passages of lines will assist commanders in synchronizing operations to maintain mass and control the time and space of the battlefield.

## **SECTION VI-CONCLUSION**

Passages of lines will be part of tactical operations of the US Army and other forces with which the Army will work. There is, however, no standardized doctrine for executing passages despite the recognition of the inherent difficulties in the execution of moving one unit through another. As the US Army transitions to contingency operations, operations other than war, and operations with combined forces outside the realm of existing alliances, the need for standardized procedures becomes more critical. This proposal on standardizing procedures for passages of lines is one approach which uses the lessons of theory, doctrine, and history to find a viable solution.

Operation Desert Storm demonstrated the effectiveness of executing an operation with significant preparation time and against a known threat. The future battlefield, however, may not afford commanders lengthy preparation time or an asymmetrical and unprepared enemy. As demonstrated by the OPERATION LIGHTFOOT

example, ad hoc organizations for passages of lines do not work because they are not simple, do not ensure mass or synchronization, and preclude the versatility to rapidly transition from one mission to another. The answer to the problems of the future battlefield lies in standardizing as many tactical tasks as possible.

Standardization of doctrine, tactics, techniques, and procedures offers many advantages to the present and future US Army. The development and implementation of the Combat Training Centers and Center for Army Lessons Learned has contributed to the proliferation of standardized doctrine, tactics, techniques, and procedures throughout the Army.<sup>30</sup> As demonstrated earlier in this study, the standardized and tried doctrine on river crossing and breach operations provided VII Corps a ready reference for organizing and executing the breach and exploitation of Iraqi defenses in February 1991. US forces in the next war need a passage of lines doctrinal reference that provides equal specificity and standardization of tactics, techniques, and procedures based on the fundamentals of simplicity, mass, synchronization, and versatility.

Future missions are likely to be at least as complex as Desert Storm. Time may be the most limited resource available to friendly commanders, and the control of time the paramount consideration in planning combat operations. The use of standardized doctrine and

procedures for executing missions will preclude commanders from having to devote precious time to missions which support maneuver and allow them to focus on the synchronized application of combat power at the decisive point. Forces can be employed to maximize their strengths, reduce their vulnerabilities, and preclude reaching their culminating point before the enemy is capable of seizing the advantage. Standardized procedures also facilitate common understanding of responsibilities and tasks and help reduce the Clausewitz' inevitable "fog of war."<sup>31</sup>

Passages of line, whether hasty or deliberate, forward or rearward, within peacetime organizations or between joint/combined forces, do not have to be viewed with dread as inhibitors to effective maneuver. The use of simple, standardized procedures can facilitate the application of combat power without reducing commanders' flexibility. By using common graphic and command and control measures, and not relying on ad hoc or localized procedures, the versatile commander retains the ability to synchronize forces, ensure mass, and maintain the initiative over his enemy.

## ENDNOTES

<sup>1</sup>US Army, Field Manual 100-5, Operations, (Washington, DC, 14 June 1993), pp 2-4 through 2-8.

<sup>2</sup>Ibid, p. vi.

<sup>3</sup>Ibid, pp. 2-10 to 2-11.

<sup>4</sup>Ibid, p. 7-2.

<sup>5</sup>Carl von Clausewitz, On War, (Princeton, 1976). This outline of concentration is derived from various places throughout Book 3. The intent is to show that concentration in time and space does not necessarily connote having all forces present at the decisive point at precisely the same time, but instead having the correct forces to fight the enemy and use the reserve forces to complete the destruction either by pursuit operations.

<sup>6</sup>Ibid, p. 566.

<sup>7</sup>Aleksander Svechin, Strategy (Minneapolis, 1991), p. 38.

<sup>8</sup>Richard Glantz, "Soviet Use of War Experience: Tank and Mechanized Corps," Journal of Soviet Military Studies, (Fort Leavenworth, October 1988).

A. Podnyshev, "Pursuit of the Withdrawing Enemy," Military Herald (Translations), (Washington DC, 1945).

N.P. Plev, "Rifle Division in the Offensive," Military Herald (Translations), (Washington DC, 1945).

The notion of a principle of cooperation/coordination is not unique to Soviet military writings, however, it is worthy to note that the idea of interdependent arms as a commander's tool to control the flow of battle is prevalent throughout post-World War II documents.

<sup>9</sup>US Army, Field Manual 71-1, Tank and Mechanized Infantry Company Team (Washington DC, 1988), pp 5-6 to 5-7.

US Army, Field Manual 71-2, The Tank and Mechanized Infantry Battalion Task Force (Washington DC, 1988), pp. 5-21 through 5-26.

US Army, Field Manual 71-3, Armored and Mechanized Infantry Brigade (Washington DC, 1988), pp. 5 to .

US Army, Field Manual 71-100, Division Operations  
(Washington, DC, 1990) pp. 6-17 to 6-19.

US Army, Field Manual 100-15, Corps Operations  
(Washington DC, 1989), pp. 71-5 through 7-16.

Taken as a collation of passage sections from each level of command-Company through Corps, the following common lists include: Exchange of intelligence, tactical plans, obstacle plans, fire support plans, standard operating procedures, plan for routes and guides, provisions for movement and traffic control, time for shift of responsibility, deception measures, and service support provisions. This is a good tool for tracking all of the necessary components of an effective passage operation. What is missing, however, is a standard means of executing. Exchanging unit standard operating procedures directly before a passage may be a recipe for a disaster. Consider, for example, the potential problem in tactical reporting when two Divisions maintain different code words for different events (e.g., BANDITS may be enemy aircraft to the passing unit, but may be a fixed call sign for an element of the passed unit).

10 Op Cit., FM 100-5, Operations, p. 8-5.

11 1st ID (M) OPORD SCORPION DANGER, pp. X-1-1 thru X-3-1, provides a concept sketch, radio net configuration, and march table timing for the crossing plan. I have enclosed copies of these pages, all unclassified, at Appendix 1.

12 I have referenced several NATO publications under one note because no individual publication provides specific reference to combined passage operations. Numerous other operations bear resemblance to passages, however, and the existing agreements support that. Interestingly enough, my research tends to show that there is greater standardization in NATO publications on basic tactical operations than within our own doctrinal manual system.

13Op Cit., FM 71-100, Division Operations, p. 6-12.

14Field Manual 90-13, River Crossing Operations,  
(Washington DC, 1991).

Op Cit., FM 100-15, Corps Operations, pp. 7-0 through 7-1.

Op Cit., FM 71-100, Division Operations, pp. 6-12 to 6-15.

Each manual provides very descriptive and, in some instances, prescriptive measures to employ when executing a river crossing. The value of this standardization lies in the preclusion of any need to

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develop further unit-specific procedures which may convolute the process. This should aid units from different parent headquarters or even service components to be capable of jointly executing effective river crossings.

<sup>15</sup>Op Cit., FM 71-100, Division Operations, p. 6-13.

<sup>16</sup>Ibid, p. 6-13.

<sup>17</sup>Ibid, pp. 6-14, 6-15.

<sup>18</sup>Op Cit., FM 71-1, Tank and Mechanized Infantry Company Team, pp. 3-40 to 3-47.

Op Cit., FM 71-2, The Tank and Mechanized Infantry Battalion Task Force, pp. 5-60 through 5-68.

US Army Field Manual 90-13-1, Combined Arms Breaching Operations (Washington, DC, 1991). Although there are numerous permutations to breaching operations, I have purposely limited my discussion to a brief review of in-stride and deliberate breaches as an illustration of effective crossing operation doctrine, tactics, techniques, and procedures.

<sup>19</sup>Op Cit., FM 90-13-1 Combined Arms Breaching Operations, p. 2-1.

<sup>20</sup>Op Cit., FM 100-5, Operations. FM 100-5 lists the US-recognized 9 Principles of War (Mass, Offensive, Surprise, Simplicity, Maneuver, Objective, Unity of Effort, Security, and Economy of Force) on pages 2-4 through 2-6; and the 5 tenets of Army Operations (Agility, Initiative, Depth, Synchronization, and Versatility) on pages 2-6 through 2-9.

<sup>21</sup>Ibid., p. 2-6.

<sup>22</sup>Ibid., p. 2-4.

<sup>23</sup>Ibid., p. 2-8.

<sup>24</sup>Ibid., p. 2-9.

<sup>25</sup>LTC Thomas V. Morley, "Corps and Division Passage Operations," Military Review (April 1991), p. 64.

<sup>26</sup>Ronald Walker, Alam Halfa and Alamein (Wellington, 1967), pp. 236-238.



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<sup>27</sup>Op Cit., Morley, p. 66.

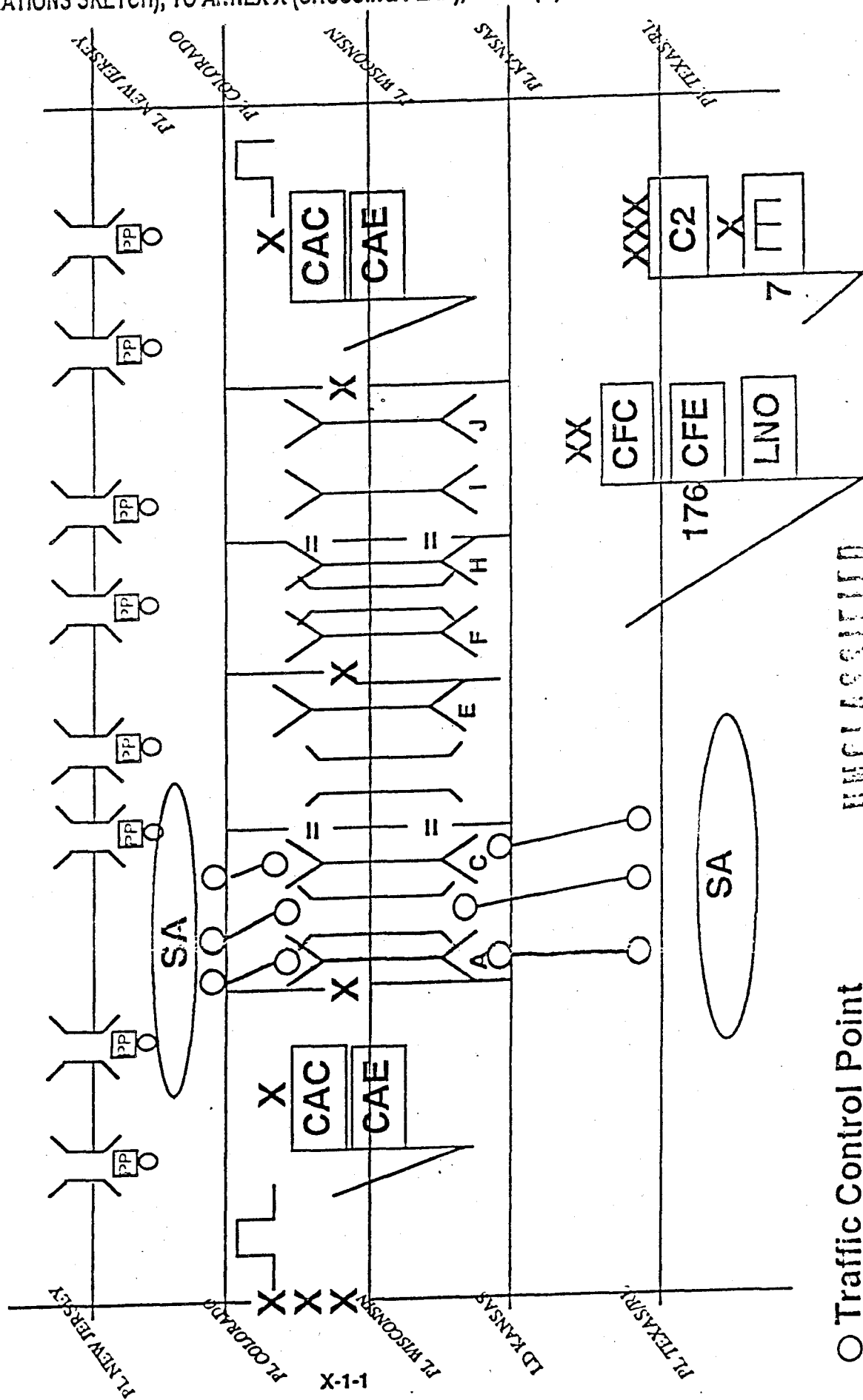
<sup>28</sup>Michael Carver, El Alamein (New York, 1962) , p. 84

<sup>29</sup>Maj Peter S. Kindsvatter, "An Appreciation for Moving the Heavy Corps," (Fort Leavenworth, 1986), pp. 62-63.

<sup>30</sup>The Combat Training Centers: National Training Center-Ft Irwin, CA; Joint Readiness Training Center-Ft Polk, LA; Combat Maneuver Training Center-Hohenfels, Germany; and Battle Command Training Program-Ft Leavenworth, KS all plan, coordinate, train, and provide observation feedback to units in the field through the use of doctrinal manuals, TTP manuals, and Mission Training Plans (MTP). A study of After Action Review and Take Home Packages will reveal that each observation is referenced to an appropriate manual or MTP for commanders to evaluate their respective unit status against the standard of doctrine and plan future training to either sustain strengths or train deficiencies. The Center for Army Lessons Learned (CALL)-Ft Leavenworth, KS compiles data and trends from CTCs and units in the field and provides observations for commanders to use in planning and executing missions.

<sup>31</sup>Op Cit, Clausewitz, On War. The notion of "fog of war" is prevalent throughout On War. The fog represents the implicit confusion of the battlefield derived from combat, inaccurate reports, and the human factor.

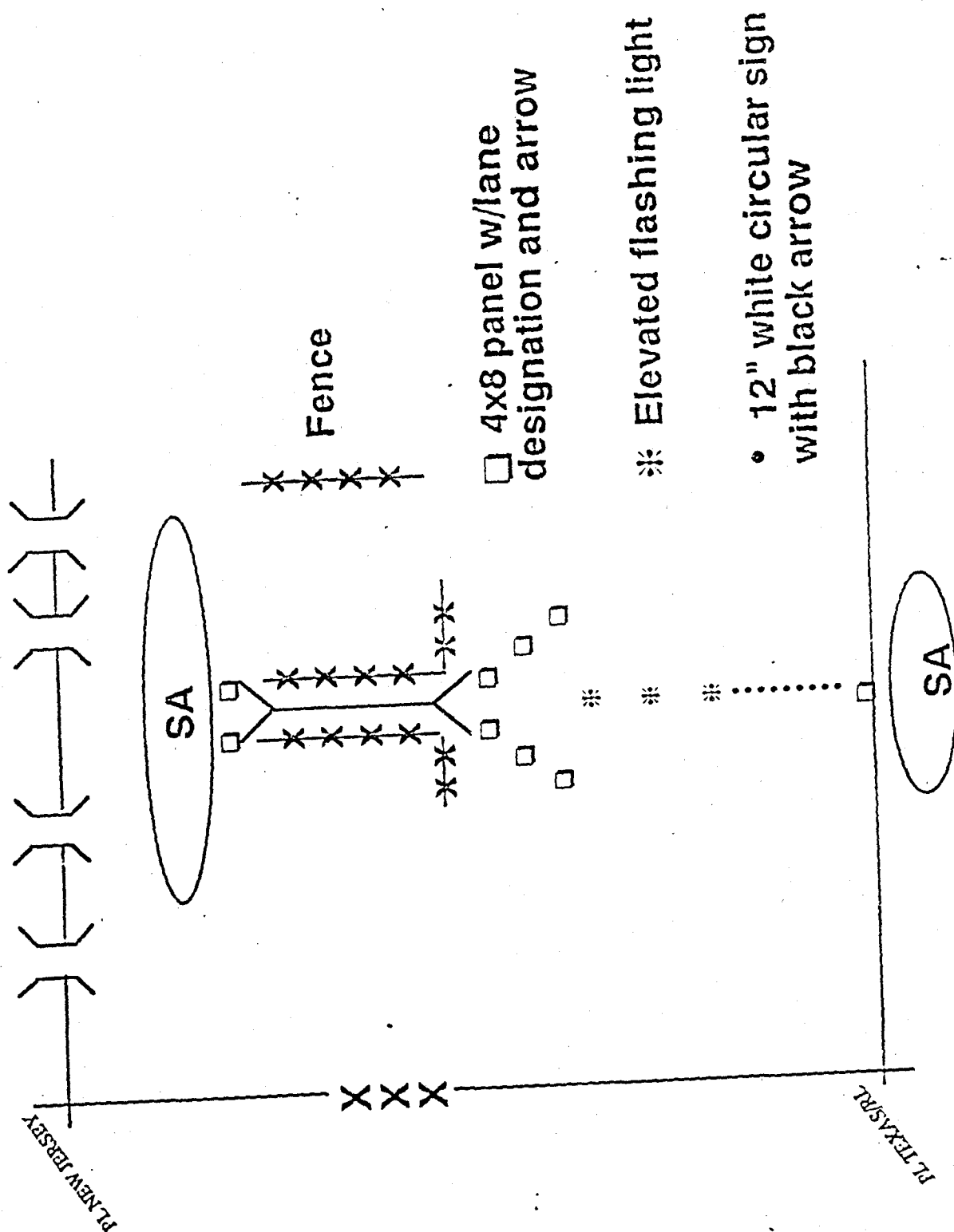
# OPERATIONS SKETCH



○ Traffic Control Point

UNCLASSIFIED

# ROUTE/LANE MARKING SYSTEM



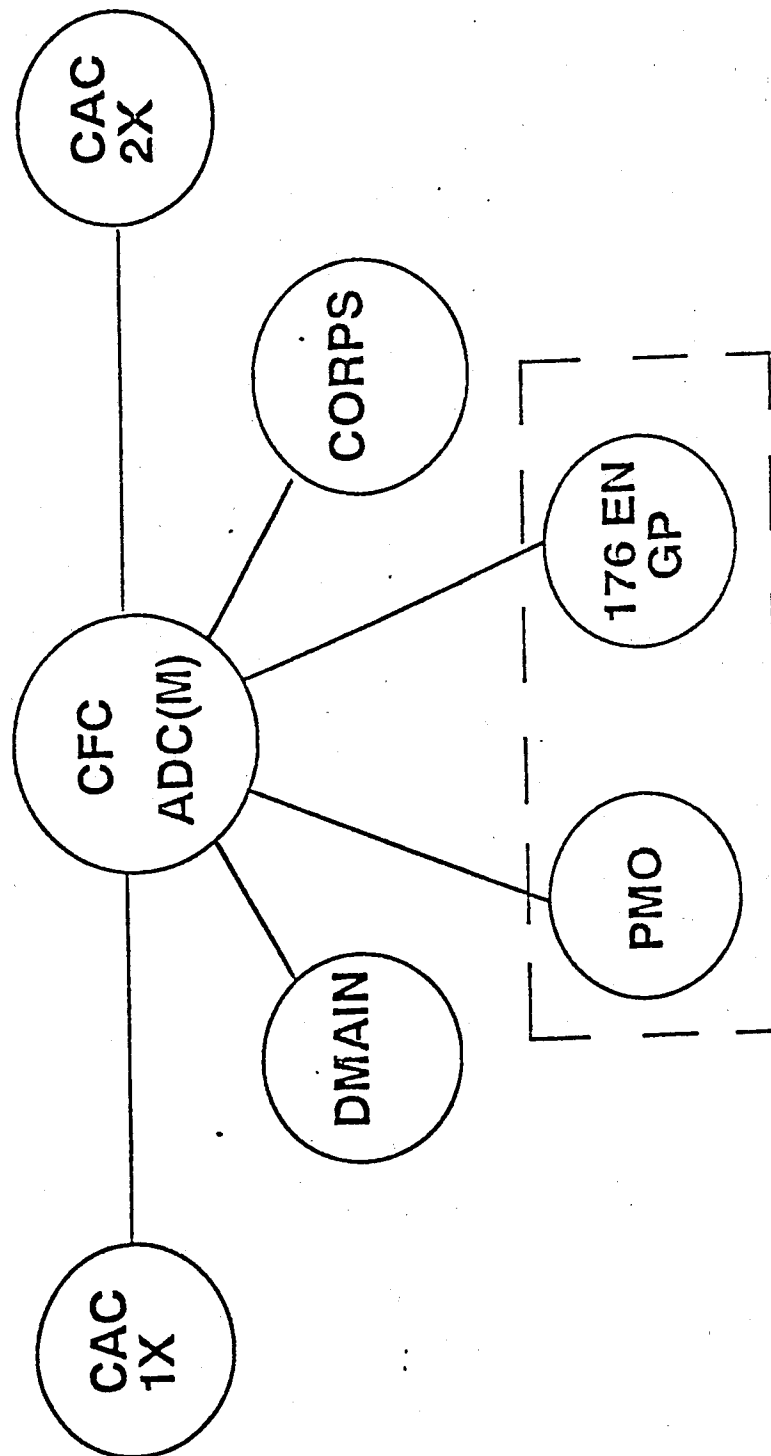
## CROSSING SCHEDULE

DAY	EVENT	H-HOUR	TIME
		(action complete)	
G-Day	Start Prep Fires	H-2:30	0300
	SP PL CHERRY	H-1:30	0400
	PL CHERRY to LD	H-0:40	0450
	LD to PL KANSAS	H-0:20	0510
	PL KANSAS to PL WISCONSIN	H-Hour	0530
	Deliberate breach along PL WISCONSIN	H+2:00	0730
	PL WISCONSIN to PL COLORADO	H+2:40	0810
G+1	Pass 3/2AD (reserve bde)	H+5:20	1050
	Establish CFC HQ	H+5:50	1120
	PL COLORADO to PL NEW JERSEY	H+7:50	1320
	Pass CTAC (1hr)	H+8:50	1420
	Construct 2 roads	H+10:30	1600
	Pass 1 (UK) AD (8hrs, 45min)	H+19:15	0045

X-3-1  
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## CFC RADIO NETS

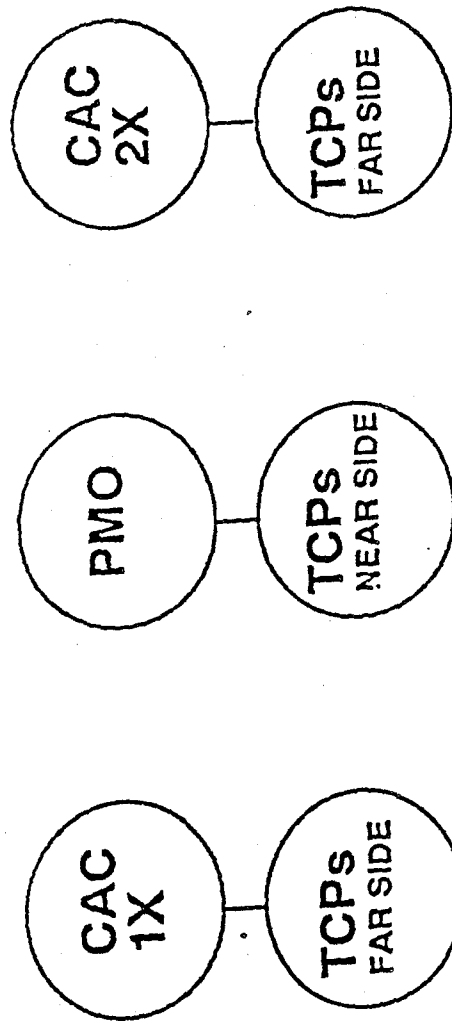


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## CAC RADIO NETS



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#### MISCELLANEOUS

Appendix 1 (Operations Sketch), to Annex X (Crossing Plan), to 1 ID (M) OPORD SCORPION DANGER. Extracted from VII Corps After Action Review-Operations Desert Shield and Storm, Volume 204, 1991.